

## CLAIMS

### WHAT IS CLAIMED IS:

1. A radio communication device on a network for communicating with a target communication terminal on the network, comprising:

a memory for storing service information so that predetermined functions can be performed over the network with the target communication terminal;

a judging module for judging whether predetermined connection conditions with the target communication terminal are satisfied by repeating a target communication terminal discovery process before establishing radio communications with another target communication terminal; and

a communication control module for executing the predetermined functions with the target communication terminal by reading service information associated with the target communication terminal from the service information memory when the predetermined connection conditions are satisfied.

2. A radio communication device on a network for communicating with a target communication terminal on the network, comprising:

a service information memory for storing service information that corresponds to the target communication terminal so that predetermined functions can be performed with the target communication terminal over the network;

a judging module for judging whether predetermined disconnection discriminating conditions are satisfied by repeating a connection process with the target communication terminal before disconnecting radio communication with the target communication terminal; and

a communication control module for invalidating the predetermined functions associated with the service information that corresponds to the target communication terminal and storing the

service information in the service information memory when the predetermined disconnection discriminating conditions are satisfied.

3. A radio communication device in a network for communicating with a target communication terminal in the network, comprising:

a service information memory for storing service information so that predetermined functions can be performed with the target communication terminal; and

a communication control module for communicating with the target communication terminal by using the service information read out from the service information memory based on communication controlling information that defines discriminating conditions for establishing a new connection with the target communication terminal or disconnecting an existing connection with the target communication terminal.

4. A communication device, comprising:

a radio communication module for exchanging data with a target communication terminal over a network;

a service information memory for storing service information so that predetermined functions can be performed with the target communication terminal;

a communication control information designating module for designating communication conditions for a newly established radio communication connection with the target communication terminal or for discriminating a disconnection of an existing radio communication connection with the target communication terminal;

a memory for storing the designated communication controlling information by the communication control information designating module; and

a communication control module for determining whether the radio communication connection with the target communication terminal is in a connection status or a disconnection status based on the communication controlling information stored in the memory, and performing communication through the radio communication module by using service information read from the service information memory in accordance with the determination result.

5. A radio communication device in a network that exchanges service information with a target communication terminal in the network for performing predetermined functions, the radio communication device comprising:

a service memory for storing the service information;

a temporary memory for temporarily storing the service information used to establish communications with the target communication terminal;

a first module for transferring the service information from the service memory to the temporary memory when a radio communicating connection for the target communication terminal has been established, and for transferring the service information from the temporary memory to the service memory when the radio communication connection with target communication terminal has been disconnected based on communication controlling information used for discriminating between a newly established radio communication connection with the target communication terminal and a disconnection of an existing radio communication connection with the target communication terminal; and

a radio communication control for performing the predetermined functions with the target communication terminal when the service information is stored in the temporary memory.

6. A communication device, comprising:

a radio communication module for exchanging data with a target communication terminal through radio;

a service memory for storing service information so that predetermined functions can be performed with the target communication terminal;

a temporary memory for temporarily storing service information used in an established target communication terminal for communication;

a designating module for designating communication controlling information in order to define conditions for discriminating between a newly established radio communication connection with the target communication terminal or a disconnection of an existing radio communication connection with the target communication terminal;

a communication controlling information memory for storing the communication controlling information designated by the designating module;

a memory for storing the communication controlling information designated by the designating module;

a discriminating module for determining whether a status of the radio communication connection with a target communication terminal is a connection status or a disconnection status based on the communication controlling information in the communication controlling information memory mechanism, and transferring the service information from the service memory to the temporary memory when the status of the radio communication connection with the target communication terminal is the connection status, and transferring the service information from the temporary memory to the service memory when the status of the radio communication connection with the target communication terminal is the disconnection status; and

a radio communication control module for performing the predetermined functions with the target communication terminal when the service information is stored in the temporary memory.

7. The communication device according to one of claims 3 to 6, wherein:

the communication controlling information includes connection discriminating conditions based on the number of times a detecting command for detecting the target communication terminal issues during a predetermined period and disconnection discriminating conditions based on the number of times a confirming command for confirming the connection to the target communication terminal issues during the predetermined period.

8. The communication device according to one of claims 3 to 6, wherein:

the communication controlling information includes connection and disconnection discriminating conditions that define a variation status of the radio communication connection for indicating a communication connection or a disconnection to the target communication terminal, the variation status is designated based on a power level of radio waves measured within the predetermined period.

9. A method for controlling a communication device that exchanges data with a target communication terminal over a radio network when establishing a new radio communication connection between the communication device and a target communication terminal, the communication device having a memory for storing various types of data, the method comprising:

judging whether predetermined connection discriminating conditions are satisfied by repeating a target communication terminal discovery process before performing the predetermined functions; and

performing the predetermined functions through the radio communication connection by extracting required service information from memory to perform the predetermined functions

between the communication device and the target communication terminal, the required service information is stored in the memory by executing the predetermined functions with the target communication when the predetermined connection conditions are satisfied.

10. A method for controlling a communication device that exchanges data with a target communication terminal over a network, when disconnecting a radio communication connection established between the communication device and a target communication terminal, the communication device having a memory for storing various types of data, the method comprising:

judging whether disconnection conditions are satisfied by repeating a target communication terminal connection process; and

invalidating the predetermined functions corresponding to executed service information that is stored in memory so that the predetermined functions between the communication device and the target communication terminal can be performed when the disconnection discriminating conditions are satisfied.

11. A method for controlling a communication device that exchanges data with target communication terminal over a network, the communication device having a memory mechanism for storing various types of data, the method comprising:

judging whether a radio communication connection between the communication device and a target communication terminal is in a connection status or in a disconnection status, based on communication controlling information that defines conditions for discriminating between a new radio communication connection established between the communication device and a new target communication terminal, or a disconnection of radio communication connection established between the communication device and the target communication terminal, and

performing radio communications with the target communication terminal by using service information that executes the predetermined functions between the communication device and the target communication terminal, the service information being stored in memory based on a discrimination result.

12. A method for controlling a communication device that exchanges data with a target communication terminal over a network, the communication device having a memory for storing various types of data, the method comprising:

storing, in memory, designated communication control information that defines discriminating conditions for discriminating between establishing a new radio communication connection between the communication device and a target communication terminal, or disconnecting a radio communication connection established between the communication device and the target communication terminal;

judging whether the radio communication connection between the communication device and the target communication terminal is in a connection state or a disconnection state based on the designated communication control information; and

performing radio communication with the target communication terminal by using service information that executes the predetermined functions between the communication device and the target communication terminal, the service information being stored in memory based on a discrimination result.